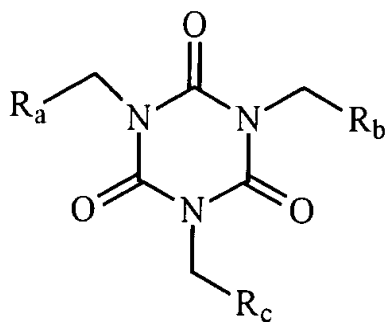


## ABSTRACT

A polymer/substrate and/or polymer/polymer interface is selected from candidate interfaces using a model that manipulates adhesive characteristics and strain variables, and estimates of their effect on candidate interfaces. The model is preferably used to evaluate properties such as size, shape, and bond geometries. Preferred models involve an atomic level visual representation of a first polymer adhered to either a second polymer or a substrate at the interface by a force, inclusion of strain-related information, and generating data from modeling effects on the interface of strain cycles resulting from intermittently applied force. Particularly preferred interfaces include a polymer having a monomer of the formula:



wherein  $R_a$ ,  $R_b$ ,  $R_c$  comprises a hydroxylated aliphatic side chain; an epoxy glycol; an ethoxy ether; a glycol ether; an adduct of glycol ether and a bisphenol glycol epoxy; an adduct of an epoxy glycol and an amine such as oxydianiline to form a hydroxylamine; an adduct of a glycol ether and a cycloaliphatic epoxy such as oxybiscyclopentene oxide; an adduct of hydroxyethyl side chain and a cycloaliphatic epoxy such as oxybiscyclopentene.